

## **Chapter 4** Cumulative Impacts

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According to regulations (40 CFR 1508.7) of the Council on Environmental Quality:

Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Because actions and projects may have collectively significant consequences, the cumulative impacts of the I-880/Route 92 interchange project need to be evaluated with other nearby, past, present, and proposed transportation and non-transportation projects in the San Leandro-Hayward-Union City area. An effort was made to be inclusive of all projects in the study area, but there were undoubtedly many projects that were overlooked because they were completed, new, small, or only a concept.

The following nine transportation project groups were included in the analysis.

1. Route 92/San Mateo-Hayward Bridge Seismic Retrofit and Widening Projects
2. I-880 Widening Projects
3. Route 238 Bypass Project (as proposed in that project's Final EIS/R)
4. Industrial Park Upgrade (subsequent to the Supplement to the Draft EIS/R, this project is now considered a long range project with negligible short term impacts)
5. I-880 Intermodal Corridor Study
6. Route 238-Mission Boulevard Improvements
7. Route 84 Realignment (as proposed in that project's Final EIS/R)

8. City of Hayward Industrial Assessment District Project
9. I-238 Widening Project

These projects are discussed in detail in Section 2.4 Related Projects.

The above transportation-related projects are occurring along with other non-transportation projects and developments in Hayward, including:

10. Downtown Hayward Redevelopment and Expansion (partially completed)—housing units, new City Hall, retail and office development and rehabilitation; expansion of improvements and development to the Burbank/Cannery area including 689 to 860 more housing units, a new school, and park and pedestrian linkages
11. Walpert Ridge (partially under application/construction)—650 to 805 single-family dwellings were originally proposed in the Hayward Highlands neighborhood, but that number is being reduced
12. Mt. Eden Business Park (completed)—282,803 sq. ft. of industrial and warehouse space at Industrial Boulevard and Route 92, which replaced greenhouses and a nursery
13. Hayward Executive Airport (proposed)—potential commercial development on Hesperian Boulevard
14. Twin Bridges/Stony Brook (completed)— up to 400 single-family dwellings at Industrial and Mission Boulevards
15. Opus and Koll Developments (completed)—162,383 sq. ft. of industrial, warehouse, and office space on Arden Road
16. Oliver Estate/Weber Properties Development (under construction)—includes development of the Eden Shores Business and Sports Park south of the Glen Eden Neighborhood, on lands that were used for growing flowers and hay, or vacant/undeveloped

Projects 10 to 13 are north of Route 92, and 14 to 16 are south of Route 92.

## 4.1 Non-Significant Adverse Impacts

There are ten resources in which the cumulative impacts of the projects would be non-significant. These resources are geology, vegetation, wildlife, threatened and endangered species, land use, social-economics, cultural resources, visual resources, noise, and hazardous waste.

The cumulative impacts of the projects upon geology, threatened and endangered species, and cultural resources would be non-significant adverse because, although one or more projects have an adverse impact upon the resource, the preponderance of the projects would have beneficial or no impacts. And those projects that do have impacts upon these resources would mitigate their effects.

The cumulative impact of the projects upon vegetation and wildlife would be non-significant adverse because there are factors that reduce the severity of the impacts. First, the projects are in a predominantly urban setting; the vegetation and wildlife within this setting tend to be common and not on endangered and threatened species lists. Second, nearly all the projects include some replanting and landscaping as design elements or mitigations. Since the vegetation and wildlife would become reestablished in time, the cumulative impacts would be minor or non-significant.

Lastly, the cumulative impacts of the projects on land use, socio-economics, visual resources, noise, and hazardous waste would be non-significant adverse because, although many of the projects have an adverse impact upon the resource, the criteria for cumulative significance are unlikely to be exceeded by these projects.

## 4.2 Adverse, But Mitigated Impacts

The six resources in which the cumulative impacts of the projects are potentially adverse are: water quality/hydrology; meteorology/air quality; wetlands; community facilities and services; transportation systems; and energy.

Most of the projects have mitigation measures that are likely to reduce the impacts to water quality/hydrology, wetlands, community facilities and services, and transportation systems to levels of non-significance. The

mitigation measures need, however, to be monitored over a period of time to ensure that the impacts to these resources remain non-significant.

For meteorology/air quality and energy, efforts would be undertaken to control dust generation and diesel fuel usage during construction to minimize PM<sub>10</sub>, PM<sub>2.5</sub>, air toxics emissions, and unnecessary fuel usage. The cumulative impacts to these two resources from the completed projects tend to be macroscale issues in which regional planning and broader mitigation approaches (e.g., emphasis on vehicles powered by alternative sources of energy) are being considered. Caltrans, the MTC, other transportation partners in the Bay Area, and local governments are making headway at the regional level with transit oriented developments, regional express bus service, bicycle lanes on bridges where feasible, more park-and-ride facilities, and vehicle sharing programs.

### **4.3 Indirect or Secondary Effects**

According to CEQ Regulations (40 CFR 1508.8), indirect effects occur later in time or are farther removed in the distance than direct effects. Indirect effects are also referred to as secondary effects. Both direct and indirect effects may be considered as subsets of cumulative effects.

With respect to the proposed I-880/Route 92 interchange project and the other past, present, and future projects, the indirect or secondary effects may include induced population growth through improvements in air quality and transportation systems. Population growth may also be induced by improvements in seismic engineering of transportation systems and infrastructures, unconstrained conversion of undeveloped lands, and excess capacity in community services and facilities. The induced population growth may eventually lead further in the future to reductions in the amount of undeveloped, agricultural, and recreational lands, water resources, and capacity in landfills, utility systems, and transportation systems. There may be a physical sense of overcrowdedness and extensive views of urbanization. And there may be a loss of natural environments and plant and animal species.

**Table 4.0-1 Environmental Impacts of Alternative H and Related Transportation Projects**

Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
<b>Physical Environment</b>										
Geology	Results in minimal increased risk of injury/death to humans and damage to facility.	Results in no increased risk of injury/death to humans and damage to facility.	Reduces risk of injury/death to humans and damage to facility.	Poses slight increase in risk of injury/death to humans and damage to facility through new structures.	Results in no increased risk of injury/death to humans and damage to facility.	Results in no increased risk of injury/death to humans and damage to facility.	Results in no increased risk of injury/death to humans and damage to facility.	Results in no increased risk of injury/death to humans and damage to facility if constructed.	Results in no increased risk of injury/death to humans and damage to facility.	Results in no increased risk of injury/death to humans and damage to facility.
Hydrology/ Water Quality	Increases paved surface area. Results in slight increase in surface runoff. Potential loading of runoff during and after construction expected to be minimal through adherence to measures and actions in NPDES Permits and SWMP.	Increased paved surface area. Resulted in slight increase in surface runoff. Potential loading of runoff during and after construction has been minimal through adherence to measures and actions in NPDES Permits and SWMP.	Encroached upon a floodplain. Increased paved surface area. Resulted in slight increase in surface runoff. Potential loading of runoff after construction has been minimal through adherence to measures and actions in NPDES Permits and SWMP.	Increases paved surface area and results in slight increase in surface runoff.	Increases pavement area by 16.4 ha. Modifies existing drainage systems. Results in slight increase in runoff. May cause potential loading of runoff during and after construction. Encroaches 0.30 ha into floodplain area.	May cause potential loading of runoff after construction.	May cause potential loading of runoff during and after construction. Loading of runoff is expected to be minimal through adherence to measures and actions in NPDES Permits and SWMP.	May cause potential loading of runoff if constructed.	May cause potential loading of runoff during and after construction. Encroaches upon 100-year floodplain.	Increases paved surface area. Results in slight increase in surface runoff. Potential loading of runoff during and after construction is expected to be minimal through adherence to measures and actions in NPDES Permits and SWMP.

Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
Air Quality	Results in dust and particulate emissions during construction, but emissions would be controlled below standards. Results in no increases in number or severity of CO exceedances.	Resulted in no increases in number or severity of CO exceedances.	Had dust and particulate emissions during construction. Resulted in no increases in number or severity of CO exceedances.	May result in dust and particulate emissions during construction. Results in no increases in number or severity of CO exceedances.	May result in dust and particulate emissions during construction. Results in no increases in number or severity of CO exceedances.	Results in no increases in number or severity of CO exceedances.	May result in dust and particulate emissions during construction. Results in no increases in number or severity of CO exceedances.	May result in dust and particulate emissions during construction. Is not expected to result in increases in number or severity of CO exceedances if constructed.	May result in dust and particulate emissions during construction. Results in no increases in number or severity of CO exceedances.	Results in no increases in number or severity of CO exceedances.
<b>Natural Environment</b>										
Vegetation	Removes landscaping within loop ramps, and on properties to be acquired. Replants areas with landscaping.	Removed landscaping.	Removed ruderal vegetation and median plantings.	Takes 0.65 ha of oak woodland, 0.85 ha of riparian lands, 2 ha of bay/oak woodland.	Takes 0.50 ha of riparian vegetated lands.	Has no impact upon undisturbed vegetated lands or important, mature vegetation.	Has no impact upon undisturbed vegetated lands or important, mature vegetation.	Has no impact upon undisturbed vegetated lands or important, mature vegetation if constructed.	Has no impact upon undisturbed vegetated lands or important, mature vegetation.	Removes landscaping.
Wildlife	Removes vegetation used by common insects and wildlife. Subjects wildlife to construction noise.	Removed vegetation used by common insects and birds. Subjected wildlife to construction noise.	Removed vegetation used by common insects and birds. Subjected wildlife to construction noise.	Takes some woodland and riparian areas used for habitats. Subjects wildlife to construction noise.	Takes some riparian areas used for habitats. Subjects wildlife to construction noise.	Has no impact on important habitats.	Subjects wildlife to construction noise, but has no impacts on important habitats.	Subjects potential wildlife to construction noise, but has no impacts on important habitats.	Subjects wildlife to construction noise, but has no impacts on important habitats.	Has no impact on important habitats.

Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
Wetlands	Fills less than 0.2 ha wetlands. Reestablishes wetlands elsewhere within project limits.	Affected 3.63 ha (8.89 acres). Mitigated impacts on-site.	Filled 0.34 ha of subtidal/open water areas. Resulted in 14.6 ha of pile supported fill and 0.15 ha of solid fill of S.F. Bay. Requires mitigation.	Fills 0.08 ha of waters and 0.65 ha of wetlands.	Fills 0.56 ha of wetlands and 0.50 ha of riparian lands. Mitigates wetlands at 2:1 and riparian areas at 3:1.	Affects 0.2 ha of wetlands. Requires on-site mitigation.	Has no wetland impact.	Has no wetland impact.	Has no wetland impact.	Has no wetland impact.
Endangered and Threatened Species	Has no impact.	Has no impact.	Subjected some sensitive wildlife species to construction noise.	May affect Alameda Whipsnake.	Poses no impacts.	Has no impact.	Poses no impacts.	Has no impact.	Has no impact.	Has no impact.
<b>Social Environment</b>										
Land Use	H converts 12 residences to freeway use. 2C converts 57 residences. 2D converts 14 residences & 1 community facility. All three alternatives require various amounts of other properties for facilities and for easements.	Had no land use impacts.	Required 0.32 ha of empty lot and 0.04 ha strips from streets for the project.	Converts 265 residences to freeway usage.	Takes 8 residences and 5 to 10 non-residential properties.	Required easements from adjoining property owners.	Has no land use impact.	Has no land use impact.	May require easements from adjoining properties. May require undeveloped properties for street extensions.	Has no land use impact.

Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
Socio-economic	Has no adverse impact upon minority or socio-economically disadvantaged groups. May subject displaced individuals to stress-related problems associated with relocation. Has negligible impact upon property tax revenues and population.	Had no adverse socio-economic impacts.	Had no adverse socio-economic impacts.	Has no adverse impact upon minority or socio-economically disadvantaged groups. May subject displaced individuals to stress-related problems associated with relocation. Has negligible impact upon property tax revenues.	Has no adverse impact upon minority or socio-economically disadvantaged groups. May subject displaced individuals to stress-related problems associated with relocation. Has negligible impact upon property tax revenues.	Has no adverse socio-economic impact.	Has no adverse socio-economic impact.	Is not expected to have adverse socio-economic impacts if constructed.	Has no adverse socio-economic impact.	Has no adverse socio-economic impact.
Community Facilities and Services	May require traffic control on streets during any relocation of utilities and during construction. 2D would adversely affect a community swim club, parking at the Southland Mall, and a portion of an Alameda County Maintenance Yard. 2C and H would have lesser impacts on community facilities.	Had no community facilities and services impacts.	Had no community facilities and services impacts.	Removes 3.1 million liter concrete water reservoir. May require some relocation of utilities. Has no other community facilities and services impact.	May require some relocation of utilities. Has no other community facilities and services impact.	Has no other community facilities and services impact.	May require some relocation of utilities. Has no other community facilities and services impact.	May require some relocation of utilities if constructed. Is not expected to have other community facilities and services impacts.	May require some relocation of utilities. Has no other community facilities and services impact.	Has no community facilities and services impact.



Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
Cultural Resources	Has no impact on known cultural resources.	Had no impacts on known cultural resources.	Had no impacts on known cultural resources.	Adversely affects three Section 106 properties. Requires archaeological mitigation.	Has no impact on known cultural resources.	Has no impact on known cultural resources.	Has no impact on known cultural resources.	Has no impact on known cultural resources.	Has no impact on known cultural resources.	Has archaeological resource within vicinity that may be affected.
Visual Resources	Results in new or changed views for residents and motorists of Route 92 bridge over I-880, sound walls, the Cheney/ Eldridge pedestrian overcrossing, and other portions of Route 92 and I-880. Will mitigate visual impacts to the extent possible.	Resulted in views of sound walls. Mitigated impacts to the extent possible.	Resulted in views of sound walls, pedestrian overcrossing, mini-toll plaza and walkway. Mitigated impacts to the extent possible.	Results in views of sound walls. Mitigates impacts to the extent possible.	Causes visual impact upon adjacent residences and near Alameda Creek.	Results in minor visual impacts associated with new street extensions.	Has minimal visual impact.	Has minimal visual impact.	Results in minor visual impacts associated with new street extensions, ramps and connector. Replaces view of existing ramp.	Results in views of sound walls. Mitigates impact to the extent possible.
Noise	Has temporary construction noise impact. Results in slight increase in noise levels due to improved traffic operations. Abates noise with new and relocated sound walls when FHWA criterion is approached or exceeded.	Had temporary construction noise impacts. Resulted in slight increase in noise levels due to improved traffic operations. Abated noise with sound walls for locations approaching or exceeding FHWA criterion.	Had temporary construction noise impacts. Resulted in slight increase in noise levels due to improved traffic operations.	Has temporary construction noise impact. Results in shifting of traffic noise to a different area. Abates noise with sound walls when noise levels approach or exceed FHWA criteria.	Affects 90 to 100 receptors. Will be unable to provide effective mitigation for increased traffic noise.	Has temporary construction noise impact.	Has temporary construction noise impact.	Has temporary construction noise impact if project proceeds.	Has temporary construction noise impact.	Has temporary construction noise impact. Results in slight increase in noise levels due to improved traffic operations. Abates noise with sound walls when FHWA criteria are approached or exceeded.

Resource	Alternatives H, 2C, and 2D (proposed)	I-880 Widening (completed)	SM-H Bridge Seismic Retrofits and Widening (completed)	Route 238 Bypass (proposed)	Route 84 Realignment (proposed)	Mission Boulevard Spot Widening (under construction)	I-880 Intermodal (proposed)	Industrial Parkway Upgrade (proposed)	Hayward Industrial Assessment District (proposed)	I-238 Widening (proposed)
Hazardous Materials	May expose people and the environment to contaminated and hazardous materials. May reuse contaminated excavated material elsewhere on-site (beneath an impervious cover or cap) or disposed in a landfill.	Removed excavated material containing aerially deposited lead and other hazardous wastes and disposed in landfill with permit to handle such material.	Removed excavated material containing aerially deposited lead and other hazardous wastes and disposed in landfill with permit to handle such material.	Excavates material containing aerially deposited lead and other hazardous wastes and either reuses on-site as fill or removes and disposes in a landfill with a permit to handle such material.	Excavates material containing aerially deposited lead and other hazardous wastes and either reuses on-site as fill or removes and disposes in a landfill with a permit to handle such material.	Removes minor amount of contaminated material and disposes in a landfill with permit to handle such material.	Excavates material containing aerially deposited lead and other hazardous wastes and removes and disposes in a landfill with a permit to handle such material.	Excavates material containing aerially deposited lead and other hazardous wastes and removes and disposes in a landfill with a permit to handle such material.	Removes minor amount of contaminated material and disposes in a landfill with permit to handle such material.	Excavates material containing aerially deposited lead and other hazardous wastes and removes and disposes in a landfill with a permit to handle such material.
Transportation	Improves traffic operations and safety. Reduces length of queues. Provides additional capacity.	Has provided improved operations and safety, reduced length of commute period delays and queues.	Has provided improved operations and safety, reduced length of commute period delays and queues.	Improves operations in South Hayward area. Bypasses Downtown traffic congestion.	Improves LOS at four intersections. Reduces travel time over the corridor.	Improves circulation on Mission Blvd.	Improves operations between I-880 and the Oakland Airport and Alameda Island.	Improves operations between I-880 and Mission Boulevard if constructed.	Improves circulation in the area west of Industrial Blvd.	Improves operations and safety. Reduces length of commute period delays and queues.
Energy	Requires energy for construction, lighting, and vehicular trips.	Required energy for construction. Results in energy use for lighting, and for vehicular trips.	Required energy for construction. Results in energy use for lighting, and for vehicular trips.	Requires energy for construction, lighting, and vehicular trips.	Requires energy for construction, lighting, and vehicular trips.	Requires energy for construction, lighting, and vehicular trips.	Requires energy for construction, lighting, and vehicular trips.	Requires energy for construction, lighting, and vehicular trips if project proceeds	Requires energy for construction, lighting, and vehicular trips.	Requires energy for construction, lighting, and vehicular trips.

**Table 4.0-2 Environmental Impacts of Non-Transportation Projects**

<b>Resource</b>	<b>Downtown Hayward Redevelopment and Expansion (partly completed)</b>	<b>Mt. Eden Business Park (completed)</b>	<b>Hayward Executive Airport (proposed)</b>	<b>Walpert Ridge (partly completed)</b>	<b>Twin Bridges/Stony Brook (completed)</b>	<b>Opus and Koll Developments (completed)</b>	<b>Oliver Estate/Weber Properties (under construction)</b>
<b>Physical Environment</b>							
Geology	Reduces risk of injury/death to humans and damage to facilities.	Resulted in no increased risk of injury/death to humans or damage to facilities.	Required to meet seismic safety building codes.	Resulted in no increased risk of injury/death to humans or damage to facilities.	Resulted in no increased risk of injury/death to humans or damage to facilities.	Resulted in no increased risk of injury/death to humans or damage to facilities.	Results in no increased risk of injury/death to humans or damage to facilities.
Hydrology/Water Quality	Increased paved surface area and surface runoff. Controlled sediment, debris, and contaminant loading of runoff during construction.	Increased paved surface area and surface runoff. Controlled sediment, debris, and contaminant loading of runoff during construction.	Increases paved surface area and surface runoff. Will control sediment, debris, and contaminant loading of runoff during construction.	Increased paved surface area and surface runoff. Controlled sediment, debris, and contaminant loading of runoff during construction.	Increased paved surface area and surface runoff. Controlled sediment, debris, and contaminant loading of runoff during construction.	Increased paved surface area and surface runoff. Controlled sediment, debris, and contaminant loading of runoff during construction.	Increases paved surface area and surface runoff. Will control sediment, debris, and contaminant loading of runoff during and after construction. Encroaches upon 100-year floodplain.

Resource	Downtown Hayward Redevelopment and Expansion (partly completed)	Mt. Eden Business Park (completed)	Hayward Executive Airport (proposed)	Walpert Ridge (partly completed)	Twin Bridges/Stony Brook (completed)	Opus and Koll Developments (completed)	Oliver Estate/Weber Properties (under construction)
Air Quality	May generate dust and particulates during construction. Not expected to cause exceedances of federal and state air quality standards	Not expected to cause exceedances of federal and state air quality standards.	May generate dust and particulates during construction. Not expected to cause exceedances of federal and state air quality standards	May generate dust and particulates during construction. Not expected to cause exceedances of federal and state air quality standards.	Not expected to cause exceedances of federal and state air quality standards.	Not expected to cause exceedances of federal and state air quality standards.	May generate dust and particulates during construction. Not expected to cause exceedances of federal and state air quality standards.
<b>Natural Environment</b>							
Vegetation	Has no impact upon undisturbed vegetated lands or important, mature vegetation. Provides new landscaping.	Removed commercial greenhouses. Provided new landscaping.	Has no impact upon undisturbed vegetated lands or important, mature vegetation. Provides new landscaping.	Removed vegetation including trees, shrubs, grasses, and weeds from undeveloped lands. Provided new landscaping.	Removed vegetation including trees, shrubs, grasses, and weeds from former golf course. Provided new landscaping.	Has no impact upon undisturbed vegetated lands or important, mature vegetation.	Displaces commercial flower and hay growing areas. Provides new landscaping and turf areas.
Wildlife	Has no impact on important wildlife habitats.	Had no impact on important wildlife habitats.	Has no impact on important wildlife habitats.	Had non-significantly adverse impacts on wildlife habitat and foraging areas.	Had non-significantly adverse impacts on wildlife habitat and foraging areas.	Had no impact on important wildlife habitats.	Has potential impact upon wildlife in wetlands and open space areas.
Wetlands	Causes loss of isolated wetlands.	Had no known impacts.	Has no known wetland impact.	Had no known impacts.	Caused loss of approximately one-third acre man-made pond.	Had no known impacts.	Has potential impact upon approx. 1.73 ac of wetlands.
Endangered and Threatened Species	Has no impact.	Had no impact.	Has no impacts	Encroached upon lands potentially supporting Alameda whipsnake.	Had no impact.	Had no impact.	Encroaches upon lands potentially supporting of burrowing owls.

Resource	Downtown Hayward Redevelopment and Expansion (partly completed)	Mt. Eden Business Park (completed)	Hayward Executive Airport (proposed)	Walpert Ridge (partly completed)	Twin Bridges/Stony Brook (completed)	Opus and Koll Developments (completed)	Oliver Estate/Weber Properties (under construction)
<b>Social Environment</b>							
Land Use	Affects 370-acre area consisting of residential, commercial & retail, office, industrial, and public (park and school) uses. Has no significant conflict between new and existing, adjoining land uses. May cause intensification of residential uses.	Converted former greenhouses and nursery to industrial/warehouse usage.	Has no significant land use impact.	Converts undeveloped areas to residences.	Converted former recreation space (golf course) to residential uses.	Has no significant land use impact.	Causes loss of 211 ac of open space and bay lands, and 238 ac of important farmland.
Socio-economic	Provides as many as 1205 new households and 2642 new jobs. Will increase property tax revenues.	Provided new jobs.	Provides new jobs.	Increases housing supply by up to 800 units. Will increase property tax revenues.	Increased housing supply by more than 400 units. Increased property tax revenues.	Provided new jobs.	Increases amount of housing supply (578 units), population (1734), and jobs (4600). Will increase property tax revenues.
Community Facilities and Services	Slightly increases need for police, fire, and emergency services, utility services, solid waste disposal, schools, and parks and recreation.	Slightly increased need for police, fire, and emergency services, utility services, solid waste disposal.	Has less than significant impacts to schools, hospitals, parks and recreation, fire protection and emergency services and police protection services.	Slightly increases need for police, fire, and emergency services, utility services, solid waste disposal, schools, and parks and recreation.	Slightly increased need for police, fire, and emergency services, utility services, solid waste disposal, schools, and parks and recreation.	Slightly increased need for police, fire, and emergency services, utility services, solid waste disposal.	Slightly increases need for police, fire, and emergency services, utility services, solid waste disposal, schools, and parks and recreation.
Cultural Resources	Poses potential impacts to archaeological and historic resources.	Had no significant impact on archaeological and historical resources.	Poses potential impacts to archaeological and historic resources.	Has no significant impact on archaeological and historical resources.	Had no significant impact on archaeological and historical resources.	Had no significant impact on archaeological and historical resources.	Has no significant impact on archaeological and historical resources.

Resource	Downtown Hayward Redevelopment and Expansion (partly completed)	Mt. Eden Business Park (completed)	Hayward Executive Airport (proposed)	Walpert Ridge (partly completed)	Twin Bridges/Stony Brook (completed)	Opus and Koll Developments (completed)	Oliver Estate/Weber Properties (under construction)
Visual Resources	Improves deteriorated (blighted) areas. Strengthens visual aspects, design, and character of the area.	Improved appearance of area from previous use. Blocked views of the Rte. 92/Industrial Blvd. IC for the area immediately to the north.	Results in no substantial change nor degrades the existing visual character.	Results in view of residential development along a ridge in the Hayward hills that is visible from the plain areas to the west.	Resulted in views of development rather than previous open space/golf course.	Results in no substantial change nor degrades the existing visual character.	Provides views of development rather than open space and agricultural fields. Provides nighttime illumination at ball fields.
Noise	Has temporary construction noise impact upon existing residential areas. Subjects new residences to industrial, railroad and BART noise.	Resulted in noises associated with new industries and businesses.	Has temporary construction noise impact. May have noise impacts from new industries and businesses.	Has temporary construction noise impact.	Subjected new residences to noise from nearby railroad.	Resulted in noises associated with new industries and businesses.	Has temporary construction noise impact. Subjects adjacent residential neighborhood to potential noises from new industrial uses and nearby railroad.
Hazardous Materials	Has potential contamination from historical, railroad-related, and other activities that require cleanup. May result in hazardous waste generated by new industries and businesses.	Had no significant hazardous waste impact.	May pose some hazardous materials contamination or exposure to workers.	Had no significant hazardous waste impact.	Had lead contamination in upper layer of soil.	Had no significant hazardous waste impact.	Has potential pesticide, lead, and other contamination from farming, railroad-related, and other historical activities.

Resource	Downtown Hayward Redevelopment and Expansion (partly completed)	Mt. Eden Business Park (completed)	Hayward Executive Airport (proposed)	Walpert Ridge (partly completed)	Twin Bridges/Stony Brook (completed)	Opus and Koll Developments (completed)	Oliver Estate/Weber Properties (under construction)
Transportation	Has truck traffic impact during construction. Generates increased number of vehicle trips. Mitigates impact on nearby streets and arterials.	Generated Increased number of vehicle trips.	Has no significant impact on traffic operating conditions at intersections, or on Metropolitan Transportation System (MTS) roadways within the study area. Has no significant impact on public transit service provided by AC Transit and BART in the study area.	Had truck traffic impacts during construction. Generated Increased number of vehicle trips.	Generated Increased number of vehicle trips.	Generated Increased number of vehicle trips.	Has truck traffic impact during construction. Introduces new circulation patterns. Generates as much as 4449 daily vehicle trips. May affect LOS at intersection of Industrial & Hesperian.
Energy	Requires energy for construction, for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Required energy for construction. Uses energy for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Requires energy for construction, for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Requires energy for construction, for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Required energy for construction. Uses energy for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Required energy for construction. Uses energy for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.	Requires energy for construction, for space conditioning, lighting, and equipment operation in buildings, and for vehicular trips.

**Table 4.0-3 Summary of Cumulative Impacts**

RESOURCE	EXISTING SITUATION AND TRENDS	COMPLETION OF EACH PROJECT	PROJECT-LEVEL MITIGATION OR CORRECTIVE ACTION	CUMULATIVE ENVIRONMENTAL CONSEQUENCES OF THESE PROJECTS
<b>Physical Environment</b>				
Geology	Region has many active earthquake faults. The Loma Prieta earthquake on the San Andreas Fault caused numerous injuries and death to humans as well as widespread damage to properties. The major fault in the East Bay is the Hayward Fault. A maximum credible earthquake (MCE) of magnitude 7.5 could occur on the Hayward Fault (an earthquake on the Hayward Fault of magnitude 6.7 or more has a 32% chance of occurring before 2030 according to the USGS).	Withstanding an MCE on the Hayward Fault is likely to be a design and construction objective for all of these projects. Generally, each project, if designed and constructed properly, should be seismically safe. No unique or special geologic features will be affected by any project.	No special mitigation for geology is proposed in any of the projects, but all take into account in design and construction measures to address seismological hazards.	These projects pose no new risks of injury or death to humans or damage to existing facilities.
Meteorology/Air Quality	Bay Area is in attainment of Federal and state CO standards and is therefore a CO maintenance area. Bay Area is a nonattainment area for PM <sub>10</sub> and ozone; thus transportation control measures in the State Implementation Plan (SIP) and a budget for transportation projects are required. The MTC analyzes transportation projects on a regional basis to ensure that the budget in the SIP is not exceeded.	Based on the assumptions, forecasting, and modeling of traffic associated with the transportation projects, there will be no exceedances of standards or exacerbation of air quality resulting from the transportation projects. Some of the non-transportation projects may cause more localized traffic congestion and localized CO increases. Each project may have microclimate impacts such as increased shading, alteration of winds, and heat reflection or absorption.	No mitigation is proposed at the project level for any of the transportation projects, except dust and particulate control during construction. The non-transportation projects may require measures that: de-emphasize the use of vehicles in favor of alternative modes of transportation and mass transit; and have design features to minimize adverse microclimate impacts.	These projects have a cumulative potential to cause nonattainment of standards, exceedances of standards, or increased severity of air pollution. They may also contribute to minute increases of the air temperature in the East Bay and Bay Area (urban area heat sink effect), and thus, have a macro-scale climatological impact. But adverse cumulative impacts would be avoided with planning efforts and approval only of projects that are in conformance with regional air quality plans and meet regional air pollutant budgets (based on air quality models and analyses).



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Water Quality/ Hydrology	Creeks, streams, and waterways in the East Bay ultimately drain into San Francisco Bay. The water quality of S.F. Bay has improved since the 1970s due to regulation of point sources and types of pollutants. But, pollution, especially from non-point sources such as surface runoff, remains a concern for aquatic species. An estimated 2.97 million gallons/year of petroleum hydrocarbons from streets and roads ends up in S.F. Bay.	During the construction of each of these projects, sediment loading could occur in surface runoff. After construction, most of the projects will have slightly more paving or impervious surface area, which decreases precipitation absorption and increases surface runoff. The increased surface runoff could carry more sediments and pollutants to surface waters.	Each project is required to have sediment control measures during construction. Some projects may also be required to have permanent control measures. Caltrans projects disturbing more than 2 ha of soil would require a Storm Water Pollution Prevention Plan (SWPPP) and permanent control measures in accordance with its NPDES permit. Projects potentially affecting waterways and fish and wildlife must also comply with conditions of any other necessary permits.	Each project poses water pollution concerns because it involves construction, and also results in more impervious surface area afterwards, hence more surface runoff. Thus, there is a potential for cumulative impacts. However, the projects would require NPDES permits, which require plans and measures to minimize water pollution during construction, and permanent control measures to minimize water pollution afterwards. The Regional Water Quality Control Board could take enforcement action against any project proponent failing to meet the conditions of their NPDES permit. So, these projects are unlikely to have an adverse cumulative impact upon water quality and hydrology.
<b>Natural Environment</b>				
Vegetation	The plain areas in San Leandro-Hayward-Union City are urbanized and almost built-out. Most of the vegetation in the plain areas is landscaping in gardens, yards, streets, planting strips, parks, etc. Native plant species are most likely to be found only in vacant and undeveloped areas of which the quantity is declining.	Each project may require the clearing of some vegetation. Most of the projects are likely, however, to include landscaping, which would offset the vegetation that was removed.	Most of the projects include landscaping or replacement of vegetation.	The cumulative impact of these projects on the amount of vegetation is expected to be non-significant because of the landscaping done afterwards. But, there may be more impact on the types of vegetation if, replacement plantings differ from those removed and if, ornamental species are selected over natives.

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Wildlife	Habitats and foraging areas for wildlife from San Leandro to Union City have decreased with the development of vacant plain areas. The wildlife in urban, plain areas tends to be highly adaptive and common compared to those in the East Bay hills/regional open spaces.	Construction noise will affect wildlife in the area. Some projects would force wildlife such as birds, insects, etc. to find other habitat and foraging areas.	No mitigation for wildlife impacts is proposed in any of the projects.	The impact on wildlife is expected to be non-significant assuming that landscaping and replantings are completed quickly. Some wildlife species may fare better than others depending on the types of replacement planting.
Wetlands	82% of the Bay's original tidal wetlands are gone. Tidal marshes have also decreased from more than 500,000 acres (in 1850) to just over 45,000 acres. Filling of wetlands and marshes have slowed since 1985 due to regulatory efforts, but still occur. The types of wetlands most in need of protection are non-tidal wetlands (i.e., vernal pools) on private properties.	The wetlands affected by these projects include 0.2 hectare (ha) for the 880/92 IC; 3.63 ha for I-880 widenings; 0.34 ha of subtidal/open water for SM-H Br Retrofits; 14.6 ha of pile supported fill and 0.15 ha of bay fill for 92 Br widening; 0.08 ha of navigable water fill and 0.65 ha of wetlands fill for Hayward Bypass; 0.56 ha of wetlands and 0.50 ha of riparian lands for Route 84; 2 ha of wetlands for Rte 238. The impact of the non-transportation projects on wetlands was not quantified.	To minimize impacts upon remaining wetlands, construction activities would be kept out of such environmentally sensitive areas. If wetlands are to be filled for a project, they are to be replaced under regulatory requirements at a ratio of 1:1 or greater. A 1.93 ha seasonal wetland will be donated to the Calif. Dept. of Fish and Game from one Caltrans project. Financial contributions would be provided from another Caltrans project to support the enhancement and establishment of off-site wetlands and marshes.	A few of these projects would cause a small decrease in the amount of existing wetlands. (The total amount of inland wetlands affected by transportation projects is under 7 ha, and the total for bay and water fill is about 15 ha.) The impacts to wetlands would be mitigated at a ratio greater than the amount lost, so there would actually be a net gain of wetlands. Overall, there should be no cumulative adverse impact from these projects because the existing federal and state regulatory frameworks ensure that there is no net loss in the amount and quality of wetlands.

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Endangered and Threatened Species	21 wildlife species are no longer found anywhere in the Bay Area. In the East Bay, approximately three dozen wildlife species and a dozen plant species are endangered, threatened, or of concern.	None of the Caltrans projects are expected to have impacts on species of concern. Two of the non-transportation projects may affect habitats of the Alameda whipsnake and burrowing owl.	Regulatory agencies may require the preservation of habitat areas or the relocation of any endangered or threatened species found in the project area.	The impact of these projects is expected to be minor.
<b>Social Environment</b>				
Land Use	Most of western Alameda County is built-out. The numbers of households in Hayward are projected to expand from 42,000 units in year 1990 to 50,000 in year 2020. From San Leandro to Fremont, there will be about 5,500 less household units allowed by local policies relative to the demand for new household units. The biggest deficit will be in the Fremont-Newark-Union City area. The amount of land needed for commercial and industrial land use in Alameda County would be approximately half the amount needed for housing, and would also be greater than the amount available.	Alternative H would displace 12 residences. The Route 238 (Hayward) Bypass would displace 263 housing units and 17 businesses. The Rte. 84 Realignment would displace 8 residences and 5-10 businesses. The I-238 Improvements would displace 2-3 residences. The transportation projects would also require portions of properties for easements. The non-transportation projects may displace a small number of residences and businesses, and some agricultural lands, but would mostly affect vacant buildings and lands.	Under a court decree, the City of Hayward has a housing replenishment program for impacts of the Route 238 Bypass Project (if that project proceeds as a bypass). No land use impact mitigations are proposed for any other project. Mitigation of displacement impacts to homeowners and businesses are discussed below.	For the transportation-related projects, the total housing units displaced = 303; total businesses displaced = 27. The impact of the transportation-related projects upon land use is more than offset by the City of Hayward's housing replenishment program (809 moderate income units and 316 low/very low income units provided through January 2000) for the Route 238 Bypass project and by the new housing units from the non-transportation development and redevelopment projects. One project would cause a further loss of agricultural and undeveloped land uses. This trend in conversion of agricultural and undeveloped land uses to more housing and businesses would enable population growth to be sustained in the Bay Area.

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Community Facilities and Services	Utility lines--electric, gas, water, sewer, telephone, cable TV--are probably within 0.805 km (0.5 mile) from all points within San Leandro-Hayward-Union City. Each of these jurisdictions, as well as unincorporated areas such as San Lorenzo and Castro Valley, provide fire protection, libraries, and schools. They have city- or county-provided administrative, emergency medical, and law enforcement services. There are shopping malls and areas, religious institutions, transit stops/facilities, and other commercial or privately provided services.	Most of the projects will involve excavation and will probably require minor relocation of some utility lines; no extended service disruptions are expected. The new development and redevelopment projects may result in an increased need for one or more of the following: utilities; law enforcement; fire protection; emergency medical services; libraries; schools; parks; solid waste disposal; and transit services.	Other than utility relocations, no mitigations are proposed in any of these projects. To offset impacts to community facilities and services, some of the non-transportation projects would include new utility lines and lands for parks and public facilities. The non-transportation projects may also fund increased or expanded community services and facilities through assessment or usage fees.	These projects would add to incremental needs for potable water, natural gas, waste water treatment, electricity generation, and financial means for providing increased or expanded community services and facilities. Their impact upon community facilities and services is potentially adverse to the area or region, if the projects exhaust remaining capacities, result in shortages, or degrades services and facilities. Water supply shortages, insufficient wastewater treatment, and deficiencies in community services and facilities would be a limit to population growth.

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Socio-economics	The growth in housing is expected to add substantially to the property tax revenues collected by local jurisdictions. One factor fueling the growth in housing is the economy. The total number of jobs in Hayward is projected to grow by 40% from 74,000 (in 1990) to 103,000 (in 2020). Assuming an age distribution similar to the rest of the Bay Area, there will be a slight decrease in the percent of the population that is less than 9, and a slight increase in the percent of the population over 65 for the period 1990 to 2010. The biggest percentage decrease will be in the 20 to 44-age cohort; and the biggest increase will be for the 45 to 64-age cohort. Most of the job growth for the period 2000 to 2010 in Union City, Hayward, and San Leandro will be in the service sector. The median household income for the period 2000 to 2010 will increase from \$55,200 to \$59,600 in Hayward.	San Leandro, Hayward, and Union City are unlikely to experience a noticeable decrease in property tax revenues as the result of the displacements by any one of the transportation projects. Hayward would have increased tax revenues resulting from the new development and redevelopment projects. There are no environmental justice issues for any of the transportation projects. Environmental justice is not expected to be an issue in any of the non-transportation projects.	Relocation costs and assistance would be provided to homeowners, tenants, and businesses that are displaced by the transportation projects. Relocation costs and assistance are likely to be provided to homeowners, tenants, and businesses that are displaced by the redevelopment projects. No mitigation measures are proposed for macro-scale socio-economic impacts.	The transportation projects that involve displacements would affect different neighborhoods, schools, community facilities, commercial establishments, etc. Thus, their socio-economic impact would be diffused and non-significant. The non-transportation projects in Hayward would have a generally beneficial impact on tax revenues, businesses, job opportunities, and new housing, which will sustain population growth in the Bay Area.
Cultural Resources	Hundreds of buildings and structures in the East Bay are listed in the National Register. Many others are eligible. There may be archaeological resources in the plain areas near the Bay.	No resources are to be taken by any of the transportation projects. Only the Hayward Bypass would have an adverse impact on three historic properties and one archaeological site. Some of the non-transportation projects may also have adverse impacts on cultural and archaeological resources or involve the actual taking of such a resource.	The impact to the three historic properties would be mitigated with a landscaping and planting plan to be reviewed by the State Historic Preservation Officer. An archaeological data recovery plan would be implemented as mitigation of the impact to the archaeological site. Similar mitigation may be required of the non-transportation projects with adverse impacts.	The impact of these projects, individually and cumulatively, upon cultural resources is expected to be non-significant.

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Visual Resources	The San-Leandro-Hayward-Union City area is relatively flat with views of S.F. Bay to the west and the East Bay Hills to the east. I-880, which runs through this area in the north to south direction, is situated at grade between Hesperian and Mission Boulevards, and is only visible to the immediately adjoining properties. Routes 92 and 84 are situated in the east-west direction, and have features that are visible to the adjoining properties as well as to some viewers at a distance.	The freeway projects would include elevated sections, some new sound walls, signs, lights, and other facilities that are visible in the surrounding areas; may block views towards the Bay and the East Bay hills; and are out of character and scale with buildings, structures, and features in the surrounding areas. The other transportation & non-transportation projects may also block some views and have additional visual impacts.	For the freeway projects, mitigation measures would include: sound wall surfaces and colors that are architecturally designed to be pleasing and conforming to people in surrounding areas as well as to motorists on the freeways; extensive landscaping to screen freeway features from the surrounding areas. The other transportation and non-transportation projects are likely to rely on landscaping and architectural design of facilities to minimize visual impacts to people in surrounding areas.	All the sound walls resulting from the Caltrans projects would screen peripheral views and reduce visual interest for freeway motorists. For people in the plain areas at a distance from the freeways, the sound walls would appear as an almost continuous structure that blocks most of the views of the freeway and, perhaps, beyond. As the non-transportation projects fill in or replace open, vacant, or underdeveloped properties, viewers would perceive a greater sense of urbanization.
Noise	Ambient noise levels ( $L_{eq}(h)$ ) for the noisiest hour near busy highways are usually 72 dBAs and more. Sound walls on I-880 and Routes 92 and 84 either already reduce noise levels by 5 dBA or more, or to levels specified in FHWA criteria for receptors adjacent to the facility.	Each of the projects would have construction noise impacts and may increase ambient noise levels through improved traffic operations or increased vehicular trips. Some of the non-transportation projects may also result in noise generated by industrial processes and activities.	Caltrans would abate noise impacts according to FHWA Noise Abatement Criteria. The resulting ambient noise levels would either be 5 dBA less than projected, or 72 dBA in commercial and industrial areas (if a sound wall is desired), and 67 dBA in residential areas. The non-transportation projects would require noise abatement if they cause exceedances of local noise ordinances.	Because noise dissipates with distance, cumulative noise impacts would only occur where two or more projects overlap or meet. One location where there are several projects and potential cumulative impacts is the Route 92/Industrial Boulevard IC. The Caltrans projects there would include sound walls, if needed and requested, which would reduce freeway traffic noise in the surrounding area. The non-transportation projects there may generate business/industrial noises that would be an adverse impact for nearby residents and sensitive receptors. Residents and sensitive receptors are likely, however, to object to noises from specific sources and events (such as construction) rather than cumulative levels.

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Hazardous Materials	There are thousands of known sites in Alameda County that are listed in databases in which hazardous materials are produced, used, or stored, or have been released. Aerially deposited lead from auto emissions has been found in unpaved areas along long-established, heavily traveled highway corridors. The most common means of dealing with soils containing hazardous materials is disposal in landfills. Most of Northern and Central California's fifty counties have 15 to 100 years of capacity remaining in their landfills.	Each project may have soil or other materials that contain heavy metals, petroleum hydrocarbons or other hazardous materials at concentrations exceeding regulatory thresholds. The soil or materials may require disposal, treatment, or other remedial action as a result of the proposed project.	Soil and other materials would be tested before construction. If they contain hazardous materials in excess of regulatory thresholds, health and safety plans would be required of the construction contractor. Special provisions would specify the handling and management of the soil or material. And the cost of remediation would be factored into the costs of the project.	The cumulative impacts of these projects are expected to be non-significant. The increase in risk to the safety of workers, the public, and the environment is minimal if standard practices of containment and cleanup are used. There may be a need for more contractors to perform cleanup of hazardous soils and materials. So, there may be potential job opportunities and expansion in that field. Landfills are expected to have sufficient capacity to accept hazardous soils and materials for many more years.

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Transportation	<p>The main highway corridors in San Leandro/Hayward/ Union City are 880, 92, 84, and 238. Major arterials that connect the highway corridors with minor arterials and streets in Hayward include Hesperian and Industrial Boulevards, Winton Avenue, Harder and Tennyson Roads, Industrial Parkway, Clawiter Road, and A and Jackson Streets. Transit systems that serve Hayward include AC Transit; BART; and AMTRAK. 880, 92, 84, and 238 are heavily used and congested during peak periods. When 880, 92, 84, and 238 are heavily congested, traffic spills over on to the major arterials. In 1996, there were 9 intersections of major arterials in Hayward that were operating at LOS E or F. There are 26 projects listed in Hayward's General Plan to improve transportation; about half of these are unfunded or under funded.</p>	<p>Most of the transportation projects are included in Hayward's General Plan and are expected to relieve congestion, and improve operations, and safety. Each of the new development and redevelopment projects has the potential to generate vehicle trips and increase congestion at nearby intersections, arterials, and highways.</p>	<p>Except during construction, no mitigation of impacts to transportation systems is proposed in any of the transportation projects. Hayward's Growth Management Element requires the identification of mitigation measures for development projects with adverse traffic impacts.</p>	<p>The impact of the transportation projects upon transportation systems would be non-significant or beneficial if they result in improvements to facility operations and safety. The non-transportation projects may offset the benefits of the transportation projects by increasing vehicle trips and congestion. But, if the mitigation measures of the non-transportation projects were effective, the cumulative impact of all the projects upon transportation systems would be non-significant. By not exacerbating transportation problems, these projects could contribute to attracting more people to the region.</p>



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Energy	As the cost of energy resources has been relatively stable for twenty-five years, the usage of all forms of energy has increased. There has been growth in vehicular fuel usage as more vehicular miles traveled (VMT) are logged; more energy consumptive vehicles are used; and more time is spent driving in congested traffic conditions. Peak period electric power usage in Northern California has been setting records due to population growth and increased use of computers and technological appliances.	Each project would require energy usage for construction, for operation of fixtures, equipment, and appliances, and for other activities. The transportation projects may reduce the amount of vehicular energy used by reducing congestion. The non-transportation projects may, however, result in increased vehicular usage and trips, and thus increased energy usage.	No energy conservation measures are likely to be proposed other than the selection of efficient fixtures, equipment, and appliances and the meeting of efficiency standards.	The transportation projects may decrease energy usage in the medium term (10 to 25 years) by relieving congestion and enabling vehicles to travel at more energy efficient speeds. The non-transportation projects may offset the energy savings from the transportation projects by increasing vehicle trips and fuel expenditures, and by increasing space conditioning, lighting, and electrical power usage. The increase in electric power usage may reduce electric power generation capacity in Northern California and lead to brownouts, higher electric rates, and increased environmental problems associated with energy resources development and electric power generation.

